Present Claims

1. (Canceled) A 3D stereoscopic projection system that utilizes a digital micro-mirror display to optically switch between left and right eye perspective images in a flicker free fashion and for which said switching between left and right eye perspective image is independent of the rate at which image data is received by said 3D stereoscopic projection system.

2. (Canceled) The system of claim 1 for which the said switching between said left and said right eye perspective images may or may not be independent of any clock or index signal internal to said 3D stereoscopic projection system.

3. (Canceled) The system of claim 1 for which said switching between said left and right eye perspective images is synchronized to a color wheel index signal for convenience.

4. (Canceled) The system of claim 1 for which a spatio-temporal stereoscopic image multiplexing method is used to decouple the said switching between left and right eye perspective image from the input image data rate.

5. (Canceled) The system for claim 1 for which the said spatio-temporal stereoscopic image multiplexing method consists of a means and apparatus to convert incoming stereoscopic image data formats into a column multiplexed format and which

consists of a means and apparatus to optically encode a sequence of left-right images for transmission to an observer.

6. (Canceled) The system of claim 1 for which the said spatio-temporal stereoscopic image multiplexing method consists, in part, of a 3D Data Formatter that (a) converts stereoscopic image data encoded in one of several formats including field sequential stereoscopic format, frame sequential ("page-flipped") stereoscopic format, over-under stereoscopic format, side-by-side stereoscopic format, row interleaved stereoscopic format, and column interleaved stereoscopic format into the column interleaved stereoscopic format with said column interleaved stereoscopic format being a spatial method for encoding a stereoscopic image into a single image data stream, (b) demultiplexes stereoscopic image data encoded in one of several formats including field sequential stereoscopic format, frame sequential ("page-flipped") stereoscopic format, over-under stereoscopic format, side-by-side stereoscopic format, row interleaved stereoscopic format, and column interleaved stereoscopic format, into two separate left and right image data channels for the purpose of performing image interpolation on each left or right image data separately, and (c) converts the image data frame rate from any standard frame rate on the input, to a single pre-determined image data frame rate on the output.

7. (Canceled) The system of claim 1 for which the said spatio-temporal stereoscopic image multiplexing method consists, in part, of a 3D Display formatter that

converts spatially multiplexed stereoscopic image data in the column-alternate format into a time-sequential format for transmission to an observer by the DMD Display.

8. (Canceled) The system of claim 1 for which a column blanking method and apparatus is used to convert said spatially multiplexed stereoscopic image data in the column-alternate format into the said time-sequential format for transmission to an observer by the DMD Display.

9. (Canceled) The system of claim 1 for which a column doubling method and apparatus is used to convert said spatially multiplexed stereoscopic image data in the column-alternate format into the said time-sequential format for transmission to an observer by the DMD Display.

10. (New) A 3D stereoscopic projection system comprising:

a digital micro-mirror display; and

a switcher for optically switching between left eye perspective image and right eye perspective image in flicker free fashion, said switcher coupled to said digital micro-mirror display,

wherein said switcher is independent of the rate at which image data is received by said 3D stereoscopic projection system.

11. (New) The system of claim 10 wherein said switcher is independent of any clock signal internal to said 3D stereoscopic projection system.

12. (New) The system of claim 10 wherein said switcher is independent of any index signal internal to said 3D stereoscopic projection system.

13. (New) The system of claim 10 wherein said switcher is synchronized to a color wheel index signal.

14. (New) The system of claim 10 further comprising:

a decoupler for decoupling said optically switching between said left eye perspective image and said right eye perspective image from an input image data rate.

15. (New) The system of claim 10 further comprising:

means to convert an incoming stereoscopic image data format into a column multiplexed format.

16. (New) The system of claim 15 wherein said decoupler uses a spatial-temporal stereoscopic image multiplexing method.

17. (New) The system of claim 15 further comprising:

a means for optically encoding a sequence of left-right images for transmission to an observer.

18. (New) The system of claim 16 wherein said spatial-temporal stereoscopic image multiplexing method comprises a 3D Data Formatter that (a) converts stereoscopic image data encoded in a format selected from the group consisting of field sequential stereoscopic format, frame sequential ("page-flipped") stereoscopic format, over-under stereoscopic format, side-by-side stereoscopic format, row interleaved stereoscopic format, and column interleaved stereoscopic format, into the column interleaved stereoscopic format with said column interleaved stereoscopic format being a spatial method for encoding a stereoscopic image into a single image data stream, (b) demultiplexes stereoscopic image data encoded in a format selected from the group consisting of field sequential stereoscopic format, frame sequential ("page-flipped") stereoscopic format, over-under stereoscopic format, side-by-side stereoscopic format, row interleaved stereoscopic format, and column interleaved stereoscopic format, into two separate left and right image data channels for the purpose of performing image interpolation on each left or right image data separately, and (c) converts the image data frame rate from any standard frame rate on the input, to a single pre-determined image data frame rate on the output.

19. (New) The system of claim 16 wherein said spatial-temporal stereoscopic image multiplexing method comprises a 3D Display formatter that converts spatially multiplexed stereoscopic image data in a column-alternate format into a time-sequential format for transmission to an observer by the DMD Display.

20. (New) The system of claim 10 further comprising:

a column blanker for converting said spatially multiplexed stereoscopic image data in the column-alternate format into a time-sequential format for transmission to an observer by the DMD Display.

21. (New) The system of claim 10 further comprising:

a column doubler for converting said spatially multiplexed stereoscopic image data in the column-alternate format into a time-sequential format for transmission to an observer by the DMD Display.